

Emission Inventory Improvement Program (EIIP)
Area Sources Frequently Asked Questions (FAQs)

General information

The Emission Factor and Inventory Group (EFIG) has prepared answers to many questions for the 1996 Emission Inventory Web Site Frequently Asked Questions, which can be found at:

<http://www.epa.gov/ttn/chief/ei/faq.html>

Phone contact: (919-541-0875)

These questions and answers should be read first, and will be referred to here. Questions and answers on this page are specific to area source inventories.

Area Source FAQs:

1. Who are the contacts for the EIIP Area Sources Committee?

The committee co-chairs are the first contacts for answering questions about specific EIIP methods and suggestions for future work. Contact any of the EIIP Area Source Committee Co-chairs:

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2. What source do I use when there are conflicts in methodology/data: AP-42, FIRE, or EIIP documents?

The overall role of these documents as sources of information about emission factors and inventory preparation is addressed in the 1996 Emission Inventory Web Site FAQs, questions 12 and 14. The Web site address is provided above.

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Question 12 presents a hierarchy of data sources for emission inventory development methods, and this hierarchy may differ depending on the purpose of the inventory. Question 14 suggests another hierarchy of data sources for emission factors.

AP-42 is EPA's compilation of emission factors. Data included in AP-42 are reviewed and rated for quality and are usually the first choice when preparing an inventory. However, in some cases, more recent data or source test data may be available that has not been included in AP-42. Very often, these emission factors can be found in the FIRE database. Newer source test data should be evaluated and compared to the data supporting AP-42 or FIRE emission factors before they are used. Maintain documentation of any new or revised emission factors.

EIIP documents, which have been prepared as complements to the information in AP-42 and FIRE, provide information about data collection and methodologies that are not part of the scope of the other documents. Emission factors recommended in EIIP documents are often from AP-42 or FIRE. In some cases, emission factors from other sources are also used. Factors from other sources are superseded by AP-42 or FIRE factors, when AP-42 or FIRE factors are more recent or more specific.

3. If EIIP does not have a chapter on a particular source category what other document(s) should we turn to for information about the category, an inventory methodology, and emission factor(s)?

Consult the planning and emission factor selection section in questions 12 and 14 of the 1996 Emission Inventory FAQs for a discussion of recommended information resources. Also see question 1 of these FAQs.

The EIIP Area Sources committee has begun to address some of other area sources with short methods abstracts. These abstracts will not go into the level of detail available in EIIP chapters, but will have at least one method for estimating the area source category's emissions. The abstracts will be posted on the EIIP Area Source Web site as they become available.

4. What are the area source categories that EIIP recommends be inventoried for a criteria air pollutant inventory?

Question 3 of the 1996 Emission Inventory FAQs addresses this issue.

EIIP makes no specific recommendations for a complete source category list. The EIIP Area Source Volume, Chapter 1, includes a table of potential source categories for an ozone precursor

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inventory (Table 1.2-1). The discussion for that table notes that the source categories that should be given higher priority in an area source inventory are:

- Known or inferred significant contributors of the pollutant of interest;
- Regulated sources;
- Sources under consideration for future regulation; and
- Sources whose emissions are most likely to impact human health.

Previous inventories such as those prepared for the inventory area for a different time period, different set of pollutants, or inventories prepared for another area, all can be used as starting points for defining a list of source categories. Inventory planners should also review the source categories included in the National Emission Trends (NET) inventory. The NET inventory and documentation can be found at:

<http://www.epa.gov/ttn/chief/trends97/emtrnd.html>

Phone contact: (919) 541-5224

and on the Clearinghouse for Inventories and Emission Factors (CHIEF) Web site at:

<http://www.epa.gov/ttn/chief/>

Phone contact: (919) 541-5285

With the information available from other inventories, it should also be possible to determine the relative scale of potential emissions from various source categories, and prioritize the choice of source categories and the estimation methods to use for them.

A final issue in the choice of source categories is that if the inventory is being prepared to satisfy EPA requirements, the inventory must cover any source categories that are required by EPA for that particular inventory. Inventory planners need to work with their EPA Regional contact when establishing their source category list and the planned estimation methods.

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5. If I follow EIIP guidance for SIP emissions inventory preparation, will EPA approve my inventory? Are all of the EIIP methods and the emission factors in the EIIP chapters approved to use in inventory preparation? How much "tolerance" can I expect if I deviate from the EIIP guidance?

There are no absolute yes or no answers to these questions. The EIIP volumes represent the recommended approaches for planning and preparing an inventory. Any of the EIIP emission estimation methods can be used for inventory preparation. Normally, if EIIP guidance is followed, your inventory should be "approvable." However, it is still your responsibility to follow the guidance properly. If you make mistakes or misinterpret the guidance, your inventory may not be approved. The choice of one method or emission factor over another should be made with a recognition of your resources, the inventory's planned uses, and the inventory's data quality objectives (DQOs). Inventory planners should gain the agreement of the EPA Regional contact on the inventory scope and DQOs to avoid wasting resources. Review EIIP Volume VI, Quality Assurance Procedures, Chapter 2, for a discussion of DQOs and inventory categories.

Defining "tolerance" will vary with the inventory purpose and DQOs. The purpose of EIIP is to encourage the use of consistent and valid emission inventory techniques. The EIIP guidance should never be a constraint that prevents you from using a better method to develop an inventory, if you can do this. (If you have developed emission inventory methods that you believe would be an improvement to those presented in an EIIP document, it would be good to also contact one of the EIIP Committee Co-chairs (FAQ #1). We can always use more good methods!)

An additional point of clarification that could be added here is that by "EIIP guidance" we mean final documents, as they appear on the EIIP web site or the Air CHIEF CD-ROM. We also post draft documents on the web site for comment purposes. In general, you should not use draft EIIP documents for preparing your inventories, since these documents have not been completely reviewed and may be changed (see FAQ #9).

Emission factors provided in the EIIP documents have been drawn from other references and those references are cited in each chapter. The answer to the question of which factor to use is answered under question 2.

6. Are the EIIP documents and appropriate sections of AP-42 linked and how do I get access to this?

When EIIP documents use or refer to information from AP-42, the AP-42 section being referenced is noted in the text. The EIIP CD-ROM uses hypertext links to link from the EIIP reference to the AP-42 section.

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7. If I can't find an emission factor for an area source category who should I call?

All of the emission factors available to EPA's Emission Factor and Inventory Group (EFIG) are on the EFIG Web site:

<http://www.epa.gov/ttn/chief/>.

The InfoCHIEF help desk can help if you have difficulty locating a factor. You can contact the InfoCHIEF help desk, either through e-mail:

info.chief@epamail.epa.gov

or by phone and fax:

Voice: (919) 541-5285

Fax: (919) 541-5680.

8. If I'm having difficulty in following an EIIP methodology and I need help who should I call?

Contact one of the EIIP Area Source Committee Co-chairs, listed above. You may also want to bring the problem to the attention of your Regional Office's emission inventory contact.

9. Do you recommend using a draft document?

No. Draft documents are subject to change based on technical and policy issues. The draft document still may provide a good indication of the most important aspects of an emission calculation for that source category. Be aware that some parts of the chapter may change. Examples of changes made to external drafts include additional detail about current control practices, changes in rankings of methods, and additional sources of activity data.

10. Is it a requirement that state and local agencies develop Data Attribute Rating System (DARS) scores for area source inventories?

Not at this time. DARS is meant to be a tool for judging the overall quality of an inventory and for comparison between different estimation methods.

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- 11. Which documents should be considered the predominant authority? For example, if the EIIP guidance has a methodology that does not work for my area, can I use the method found in Procedures Volume I?**

Your EPA Regional contact should be consulted about which document to use when there is an apparent conflict in methods (see FAQ#2). Also, consult with EFIG through the Info CHIEF help desk (info.chief@epa.mail.epa.gov) and EIIP Area Source Committee Co-chairs about the method as it is applied to your situation.

- 12. What sort of reconciliation needs to take place in order to make the emissions estimated with a new EIIP methodology comparable to those estimated for the 1990 base year inventory (e.g., the emission factor for Consumer/Commercial Solvents is larger than the factor used for 1990 thus increasing the emissions from that category significantly)? Is the state or local agency required to or is it recommended that the state or local agency go back to the base year inventory and re-calculate it in order to assure comparability? What if that may amount to significant work (i.e., essentially having to do two inventories, collect all of the activity data, etc.)? What is the effect on the State Implementation Plan (SIP) that the state or local may have on record with EPA?**

Review the answer to question 1 in the 1996 Emission Inventory FAQs.

Remember that emission factors in EIIP that are different from 1990 factors are an improvement in the estimation of the source category, and should better represent more recent emission rates. In some cases, such as the consumer and commercial solvent use category and the graphic arts category, the estimate is going to be higher because the new method covers more of the emitting processes in the source category. The consumer and commercial solvent use method now includes consumer and commercial pesticide and adhesive use, in addition to many more subcategories that were not included in the previous factor. On the other hand, using EIIP methods for other categories such as architectural coatings will result in lower emissions than those estimated using the 1990 inventory factors. These changes will allow for a more accurate inventory.

Process and technical changes that may have occurred within an industry between 1990 and 1996, use of new controls, rules or restrictions in the use of certain materials, and the removal of a chemical from the list of reactive VOC (such is the case for perchloroethylene and dry cleaning) should be considered when comparing emission estimates for 1990 and 1996.

The best method to reconcile inventories from different years is a policy issue to be decided by the EPA and the state or local agency. Potential options include recalculation of the 1990 emissions, proportioning 1990 emissions by the changes in the emission factor, or back-casting

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1996 emissions to 1990 levels. An example of recalculation would be to use the new population-based factor for consumer and commercial solvent use emissions. Emissions from 1990 may be proportioned to reflect an emission factor change by using the following equation:

$$\text{Revised 1990 Emissions} = \text{Original 1990} * \frac{\text{New Emission Factor}}{\text{Old Emission Factor}}$$

When a source category uses a more complicated emission estimation method involving detailed activity data collection, it may be possible to back-cast an emission estimate from 1996 to 1990 using a “growth” factor, just as projected emissions are grown for future years. Use of this approach should be discussed with your EPA region before proceeding. Controls, process and material changes that have come into practice in the years between the two inventories need to be identified and accounted for when using this method.

The EIIP Projections Committee, at:

<http://www.epa.gov/ttn/chief/eiip/project.htm>

Phone contact: (919) 541-3649

is preparing guidance on options for forecasting future emissions in the form of a list of recommended approaches for specific indicators. These documents should be used to identify available projection methods and growth indicators. EIIP Area Source chapters also list possible growth indicators, for each source category.

Inventory preparers should focus their efforts on reconciling the emission estimates from only the larger area sources.

13. What are the primary reference documents (e.g. other agencies or EPA Guidance Documents) to the EIIP documents?

The references at the end of a chapter are the best indicator of contributing sources. When a methods chapter is prepared, efforts are made to identify the most recent information available for that source category. Resources that we have used in the past are: inventory guidance developed for non-criteria pollutants, inventory guidance developed by state agencies, information collected for new air emission standards, and industry contacts or source category experts.

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- 14. How do I find out how much air pollution an individual area source category, such as cars, lawnmowers, or fireplaces, etc., produce in a certain time period, such as a year, day, or hour?**

Estimates of emissions from specific source categories, such as lawn mowers, fireplaces, etc., are made by state and local air agencies and by the EPA. Information of this type is available either from the state or local agency, or from the EPA's NET inventory at:

<http://www.epa.gov/ttn/chief/trends97/emtrnd.html>

Phone contact: (919) 541-5224

- 15. When is the use of a preferred method, which happens to be a local survey for an area source category, really necessary? Can you provide some concrete guidance to help determine when I really have to do a survey as opposed to a much less difficult and less expensive approach that may not yield quite as good an answer?**

One thing to keep in mind is that a well done alternative method is better than a poorly done preferred method. A survey is not useful if the resources to properly plan and complete it are not available, if personnel with the statistical training needed to interpret survey results are not available, or the survey focuses on collecting data which are only a small part of the emission calculation.

An example of a good use of a preferred method is the survey outlined as the preferred method for estimating emissions from asphalt paving. In this case, the survey population is state and local DOTs, which should not be as difficult a group to collect from as many other area sources. The benefits of collecting this detailed information is that it will reflect the local use by material type and by season. Solvent contents of both emulsified and cutback asphalts can vary appreciably, so getting specific information about material types could result in more precise estimates. Using a survey will also allow for information to be collected about HAP emissions from this source, if a toxics inventory is being planned.

Another example of using a survey is to fine-tune one of the alternative methods to include more local information about activity during the inventory season, the equipment being used for source category processes, or to reflect local rules or practices. It may also be worthwhile for several agencies to pool their resources and characterize regional emissions for a source category through a single survey of regional suppliers, or a representative sample of individual sources.

Preferred methods that require a considerable amount of effort are provided in EIIP chapters for instances when the source category is expected to be a significant contributor to area emissions,

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are regulated sources, or are being considered for regulation. These methods are chosen when the benefits of having detailed, locally-specific emissions information outweigh the expense and difficulty of the information collection. Having well-defined DQOs for the inventory should help when making these decisions. Other considerations may be the ultimate use of the inventory, and sometimes, local concerns about emissions from specific source categories. The survey approach may be worthwhile for source categories that are important for more than one inventory, for example, inventories for CO and PM-fine, or VOCs and HAPs.

It is useful to do some sensitivity analysis of potential methods to identify which factors have the most impact on emissions. With that information, and the DARS scoring (discussed below) for the preferred and alternative methods, inventory planners can identify their greatest source of uncertainty in the emission calculation. Then, planners can decide if detailed information can provide worthwhile benefits.

16. How should DARS scores be used in choosing an appropriate area source methodology for my situation?

One way to compare preferred and alternative methods is through the DARS rankings provided in Section 6 of every chapter. The rankings provide a qualitative guide for comparing the methods presented in the chapter in terms of various attributes: emission and activity factor measurement, source specificity, spatial congruity, and temporal congruity. This is one way to see if an alternative method meets the quality objectives for the inventory. Specific points to look for are:

Source specificity: Available emission factors may not represent the full range of operations, or the activity surrogate used with the emission factor may not be representative of true activity.

Spatial congruity: Area source methods often use per capita or per employee emission factors based on national averages. For some areas and source categories, this is a reasonable approach. However, another area may have significant variations from national averages because of state or local regulations, local practices or the predominance or lack of certain industries.

Temporal congruity: If an alternative method uses data for a very different time period, and rules, processes or material used have changed from that time, the method will not reflect practices during the inventory time period.

17. What source categories are planned for future work?

At the time of this writing, chapters on agricultural open burning, prescribed burning, wildfires, and unpaved roads (fugitive dust) are being developed. Chapters on autobody refinishing and agricultural operations as a source of ammonia are being considered. Further efforts are aimed at

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developing short “abstracts” of methods for smaller area sources. These may address some important aspect of the source category, such as the division between point and area emissions from a source category, or temporal apportioning of the source category’s emissions. Source categories under consideration are:

- Commercial charbroiling;
- Bakeries;
- Residential fuel combustion;
- Asphalt roofing;
- Oil and gas production;
- Catastrophic/accidental releases;
- Small facilities;
- Barge, tank, and truck cleaning;
- Vehicle fires; and
- Remediation of leaking underground storage tanks.

18. How often will you be reviewing methodologies to incorporate new data?

Typically, the EIIP Area Source Committee would plan a cursory review of the existing documents on an annual basis and allocate budget resources for any necessary updates or changes to documents. Scheduling of changes would coincide with the annual Air CHIEF CD-ROM updates. After fiscal year 1999, the budget for EIIP is uncertain. The question of who will maintain EIIP documents in the future if EIIP funding ends has been discussed, but no decisions have been made yet. If another organization assumes responsibility for maintenance of EIIP documents, the frequency with which documents are reviewed could change.

19. Is there a schedule in place for how often the EIIP Area Source documents will be revised? Is there an advantage to switching to the EIIP documents if they will not have continuing support and revisions? The revisions issue may be particularly critical in areas (e.g., PM_{2.5}) in which there is a great need for research, which will mean continual change that will necessitate periodic updates.

There is no fixed schedule that will be followed for revising the documents. See FAQ #18 above. See the answer to FAQ #2 with respect to the hierarchy for emission inventory preparation guidance. We do not expect that the EIIP documents will be replaced anytime in the foreseeable future by some other set of guidance. Clearly, some of the EIIP documents will need to be updated when new data and methods become available. How the EIIP documents will be maintained depends on what future program budget decisions are made, per FAQ# 18 above.

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20. Does EIIP have any plans to document methodologies for creating an inventory of emissions for use in air quality modeling?

The EIIP Area Source Committee does not have any plans to expand its documents to provide specific guidance for preparation of emissions data for input to air quality dispersion models. The EIIP area source documents do include general guidance on procedures for spatial and temporal allocation of emissions, that may be useful for creating an inventory to be used for air quality dispersion modeling. However, for guidance on preparation of emissions data for input to specific air quality models you should consult the appropriate reference manuals for the models you will be using, such as *Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone Volume II: Emission Inventory Requirements for Photochemical Air Quality Simulation Models* (EPA-450-4-91-014, May 1991) or documentation for individual components of the Models-3 framework.

21. Are methodologies planned for PM categories?

EIIP established a PM committee in 1998. Questions regarding that committee's work should be directed to its EPA co-chair:

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The EIIP Area Sources volume has two chapters with PM emission factors: residential wood burning and open burning of land clearing waste, household waste, and yard trimmings. Chapters in preparation for agricultural burning, prescribed burning, and wildfires include some PM emission factors, and the chapter in preparation for unpaved roads is exclusively for fugitive dust emissions. As PM factors become available, area source chapters can be updated.

22. Where can I find information on estimating biogenic emissions?

Refer to questions 22 through 24 on the 1996 Emission Inventory FAQ Web Site. It includes links to the EPA's Atmospheric Sciences Modeling Division Web Site. The EIIP Biogenic Sources Committee produced a preferred and alternative methods volume for vegetative sources

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of VOC, NO_x from soils, NO from lightning and VOC from oil and gas seeps. This volume is available on the EIIP Web site:

<http://www.epa.gov/ttn/chief/eiip/>

Phone contact: (919) 541-1375

23. How can I contact staff in other states to discuss their experiences with using the methodologies?

Each EIIP committee's Web page includes contacts for the committee. Start there, or investigate the Web site for the State and Territorial Air Pollution Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) at:

<http://www.4cleanair.org/>

Phone contact: (202) 624-7864

Other options are to attend professional meetings (AWMA, etc.) to meet your colleagues from other states, and attend other EPA-sponsored national or regional conferences and workshops that include emission inventory-related topics. These are good opportunities for discussions with personnel from other states. Ask your Regional Office emissions inventory coordinator for the names of his/her contacts in other states.

24. How can I get more information on estimating toxics emissions?

Refer to 1996 Emission Inventory Web Site FAQs, question 12. The Web site address is provided above. The EIIP Area Sources volume has eleven chapters that have at least one method for estimating HAP emissions for their respective source categories. Chapters in preparation for residential wood burning, which has PM emission factors, and chapters in preparation for agricultural burning, prescribed burning, wildfires, structure fires, and open burning of land clearing waste, household waste, and yard trimmings, asphalt paving, accidental burning and autobody refinishing will include emission estimation methods for HAPs as well.

The *Handbook for Air Toxics Emission Inventory Development Volume I: Stationary Sources*, covers inventory development issues. It is located on the CHIEF Web site:

(<http://www.epa.gov/ttn/chief/>)

Phone contact: (919) 541-5285

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Also, look for information linked to the Unified Air Toxics Web site:

(<http://www.epa.gov/ttn/uatw/>)

Phone contact: (919) 541-5347

The Unified Air Toxics Web site includes documentation of inventories developed for CAA sections 112(c)(6) and 112(k), which include emission factors and estimation methods.

25. What are the area source categories that EIIP recommends be inventoried for a PM_{2.5} inventory?

See the discussion for question 4, and the answers to question 7 and 8 in the 1996 Emission Inventory FAQs.

26. Some of the area source chapters include toxic emissions factors. Is there a requirement to do area source toxic emissions inventories? Are the area source categories for a toxic emissions inventory the same as those for a criteria pollutant inventory?

The 1996 Emission Inventory FAQs answers to questions 9 through 12 and question 14 address toxics inventories. There is no requirement at this time to do area source toxics inventories. A rule that requires reporting of emissions of selected toxic compounds is planned.

Although a criteria pollutant inventory would be a useful starting point for a toxics inventory, it may not include all of the source categories of toxic air pollutants. A useful reference for potential source categories is the EPA's National Toxics Inventory, which is being distributed as part of the NET inventory.

27. Is there a person I can talk to if I have difficulty in specifying which Source Classification Codes (SCCs) are related to a particular area source category so the point source emissions can be subtracted from the area source estimate?

Point source corrections to area source estimates must be done on a category-by-category basis. When a facility's emissions are the result of multiple processes, only the emissions from the process related to the area source category should be used for the point source correction. This makes identification of the emissions by SCC and matching the SCC to the area source category crucial for good area source estimates. A table with area source categories that typically have a point source component and the general procedure for corrections is discussed in EIIP Volume III, Chapter 1, *Introduction to Area Source Emission Inventory Development*.

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The EIIP Area Source volume also includes discussion of point source corrections with each method chapter, noting when the method may include point source emissions. However, identifying the SCC code of the specific point source process is left up to the inventory preparer and the preparer's agency.

Contact EFIG (see FAQ 7 for telephone number and e-mail addresses) for more information.

28. What software tools are available to help me manage my area source data collection process consistently within EIIP guidelines and where can I get these tools? Will EPA be developing any new products along this line in the near future?

The EIIP Data Management Committee has defined data format guidelines for inventory data. Refer to the Data Management Committee's documents on the EIIP Web page, and the Data Submission portion of the 1996 Emission Inventory Web site at:

<http://www.epa.gov/ttn/chief/ei/eisubmit.html>

Phone contact: (919) 541-7862 or 1-800-334-2405